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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,014	12/28/2000	Hemant M. Chaskar	0956460405288.00001	6181

7590 04/16/2004

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EXAMINER
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MOORE, IAN N

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 04/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/751,014

Applicant(s)

CHASKAR, HEMANT

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.6.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Method and Apparatus for communicating data in GPRS network based on a plurality of traffic classes**

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,3-16, and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Barany (U.S. 2003/0189900A1).

**Regarding Claims 1, 5 and 16**, Barany'900 discloses a General Packet Radio Service (GPRS) network (see **FIG. 4, GPRS network**) comprising a plurality of GPRS Support Nodes (GSNs) (see **FIG. 4, LR1/SGSN 302, BR1/SGSN 20, ER1/GGSN 304, BR2/GGSN 22, and ER2/GGSN 306**), including at least one Serving GPRS Support Node (SGSN) (see **FIG. 4, LR1/SGSN 302 or BR1/SGSN 20**) in communication with at least one Gateway GPRS Support Node (GGSN) (see **FIG. 4, ER2/GGSN or BR2/GGSN 22**) via an Internet Protocol (IP)-based network

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(see FIG. 4, network 320,322, or 324 is the Internet based network; see page 1, paragraph 5) comprising a plurality of intermediate nodes (see FIG. 4, intermediates routers 350, 352 and 27; see page 5-6, paragraph 46 and 60) method for communicating data across the IP-based network according to a plurality of traffic classes (see FIG. 5, plurality of traffic classes/queues), the method comprising steps of:

defining a plurality of delay-differentiated paths (see FIG. 4, identifying/defining plurality of DS routes/paths according to DiffServ/ DS/flow-label/traffic-class labels between the routers; see page 5, paragraph 46) within the IP-based network between each of the at least one SGSN (see FIG. 4, LR1/SGSN 302 or BR1/SGSN 20) and each of the at least one GGSN (see FIG. 4, ER1/GGSN 304, BR2/GGSN 22, or ER2/GGSN 306; see page 6, paragraph 61), wherein each of the plurality of traffic classes (see FIG. 5, each of plurality of traffic classes/queues) has at least one delay-differentiated path of the plurality of delay-differentiated paths corresponding thereto (see FIG. 5 and see page 6, paragraph 63-64; note that DS value in each packet maps/corresponds to each different class of traffic, and different type of traffics are queued and routed toward plurality of DS paths);

determining, by an ingress GSN of the plurality of GSNs (see FIG. 4, input/ingress of router 20 of the plurality of routers 302,304,20,22, and 306), a traffic class of the plurality of traffic classes corresponding to the data (see page 5, paragraph 47 and page 6, paragraph 61; note that each router has a capability to classify the received traffic);

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assigning, by the ingress GSN, a label to at least a portion of the data according to the traffic class (see page 4-5, paragraph 43, 47; each PHB group label is mapped/assigned to each packet (i.e. a packet carries portion of the data) according to the QoS of traffic type/class) to provide labeled data (see page 6, paragraphs 61-62; note that each traffic class is metered and marked/label by the appropriate PHB to form/provide PHB label/level packet); and

routing, by the ingress GSN to an egress GSN of the plurality of GSNs (see FIG. 4, routing input/ingress traffic to output/egress router 22 of plurality of routers 302,304,20,22, and 306), the labeled data through a first delay-differentiated path of the plurality of delay-differentiated paths based on correspondence of the label to the first delay-differentiated path (see page 6-7, paragraph 63-65,67; note that each PHD group label packet is routed through the first DS path of plurality DS paths according to the PHD group label/parameter (i.e. streaming, conversation, interactive, and etc.)).

Regarding Claims 10 and 11, Barany'900 discloses a General Packet Radio Service (GPRS) network (see FIG. 4, GPRS network) comprising a plurality of GPRS Support Nodes (GSNs) (see FIG. 4, LR1/SGSN 302, BR1/SGSN 20, BR2/GGSN 22, and ER2/GGSN 306), including at least one Serving GPRS Support Node (SGSN) (see FIG. 4, LR1/SGSN 302 or BR1/SGSN 20) in communication with at least one Gateway GPRS Support Node (GGSN) (see FIG. 4, ER2/GGSN or BR2/GGSN 22) via an Internet Protocol (IP)-based network (see FIG. 4, network 320,322, or 324 is the Internet based network; see page 1, paragraph 5)

comprising a plurality of intermediate nodes (see FIG. 4, intermediates routers 350, 352 and 27; see page 5-6, paragraph 46 and 60), a method for communicating data across the IP-based network according to a plurality of traffic classes (see FIG. 5, plurality of traffic classes/queues), the method comprising steps of:

determining, by an ingress GSN of the plurality of GSNs (see FIG. 4, input/ingress of router 20 of the plurality of routers 302,20,22, and 306), a traffic class of the plurality of traffic classes corresponding to the data (see page 5, paragraph 47 and page 6, paragraph 61; note that each router has a capability to classify the received traffic);

assigning, by the ingress GSN, a per-hop behavior (PHB) group of a plurality of PHB groups (see page 4-5, paragraph 43, 47; a PHB group label from various/plurality of PHB groups is mapped/assigned to several QoS of traffic type/class) to the data based on the traffic class (see page 6, paragraphs 61-62; note that each traffic class is metered and assigned by the appropriate PHB according to the QoS),

transmitting, by the ingress GSN, a portion of the data to one of the plurality of intermediate nodes (see FIG. 4, each packet (i.e. a packet carries portion of the data) is send/transmitted by the BR1/SGSN 20 to one of the intermediate routers 352 within the network 312; see page 6, paragraph 60-61); and

handling, by the one of the plurality of intermediate nodes, the portion of the data based on the PHB group (see page 6-7, paragraph 63-65,67; note that since the BR1 is labeled/mapped the PHD group label/parameter (i.e. streaming,

**conversation, interactive, and etc.), it is clear that each intermediate router must handle each packet accordingly).**

**Regarding Claims 3 and 14, Barany'900 discloses wherein the ingress GSN comprises one of the at least one SGSN (see FIG. 4, BR1/SGSN 20 or LR1/SGSN 302) and the egress GSN comprises one of the at least one GGSN (see FIG. 4, BR2/GGSN 22 or ER2/GGSN 306).**

**Regarding Claims 4 and 15, Barany'900 discloses wherein the ingress GSN comprises one of the at least one GGSN (see FIG. 4, BR2/GGSN 22 or ER2/GGSN 306) and the egress GSN comprises one of the at least one SGSN (see FIG. 4, BR1/SGSN 20 or LR1/SGSN 302).**

**Regarding Claims 6, Barany'900 discloses wherein transmitting, by the ingress GSN, the labeled data to one of the plurality of intermediate nodes (see FIG. 4, each PHB labeled/mapped packet (i.e. a packet carries portion of the data) is send/transmitted by the BR1/SGSN 20 to one of the intermediate routers 352 within the network 312; see page 6, paragraph 60-61);**

**handling, by the one of the plurality of intermediate nodes, the labeled data based on the traffic class (see page 6-7, paragraph 63-65,67; note that since the BR1 is labeled/mapped the PHD group label/parameter (i.e. streaming, conversation, interactive, and etc.), it is clear that each intermediate router must handle each labeled/mapped packet accordingly).**

**Regarding Claims 7 and 18,** Barany'900 discloses wherein each of the plurality of traffic classes has a unique correspondence to one of a plurality of per-hop behavior (PHB) groups, further comprising a step of:

assigning, by the ingress GSN, a PHB group of the plurality of PHB groups (see page 4-5, paragraph 43, 47; a PHB group label from various/plurality of PHB groups is mapped/assigned to the QoS of the traffic type/class) to the labeled data based on the traffic class (see page 6, paragraphs 61-62; note that each DS labeled traffic is metered and assigned by the appropriate PHB according to the QoS),

wherein the step of handling further comprises the intermediated nodes handling the labeled data according to the per-hop behavior group assigned to the labeled data (see page 6-7, paragraph 63-65,67; note that since the BR1 is labeled/mapped the PHB group label/parameter (i.e. streaming, conversation, interactive, and etc.), it is clear that each intermediate router must handle the labeled/mapped packet accordingly.)

**Regarding Claims 8,12, and 19,** Barany'900 discloses wherein the plurality of traffic classes comprises conversational (see FIG. 5, Conversational queues 416,418-420), streaming (see FIG. 5, Streaming queues 412,414), interactive (see FIG. 5, Interactive queues 404-408) and background traffic classes (see FIG. 5, Background queue 402), and



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wherein the conversational class corresponds to an Expedited Forwarding PHB group (see page 4, paragraph 43: **note that conversational class is mapped to the EF (expedited forwarding) PHB group**),

the streaming class corresponds to a First Assured Forwarding (AF1) PHB group (see FIG. 5, Streaming AF11, where the range is between AF11-AF43, is **the first assure forwarding group; page 4, paragraph 42-43**),

the interactive class corresponds to a Second Assured Forwarding (AF2) PHB group (see FIG. 5, Interactive AF21, where the range is between AF11-AF43 is **the second assure forwarding group, is the second assure forwarding group; page 4, paragraph 42-43**), and

the background class corresponds to a Third Assured Forwarding (AF3) PHB group (see FIG. 5, background DE, default/best effort forwarding PHB, is **the third assure forwarding group; page 4, paragraph 41-43**).

**Regarding claims 9,13, and 20**, Barany'900 discloses assigning the PHB group to the labeled data based on any of a group consisting of: a source IP address, a destination IP address, a source port number, a destination port number, an IP protocol identification, and a packet size (see FIG. 5, Controller 430; see page 4, **paragraph 40; note that controller assigns/maps each DS labeled packet to PHB group according to any of a group consisting of a flow label or traffic class label of the IP v4 or v6 header.**)

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barany'900 in view of Gibson (U.S. 6,680,943).

**Regarding claims 2 and 17**, Barany'900 discloses defining the plurality of delay-differentiated paths within the at least one SGSN and the at least one GGSN as described above in claim 1 and 16.

Barany'900 does not explicitly disclose Multi-Protocol Label Switching (MPLS) implemented within the at least one SGSN/node and the at least one GGSN/node.

However, the above-mentioned claimed limitations are taught by Gibson'943. In particular, Gibson'943 teaches defining the plurality of delay-differentiated paths based on Multi-Protocol Label Switching (MPLS) (**see FIG. 1, MPLS networks 15**) implemented within the at least one SGSN/node (**see FIG. 1, Abstract node AN 12**) and the at least one GGSN/node (**see FIG. 1, Abstract node AN 13**); **see col. 9, lines 1-25**.

Note that Barany'900's SGSNs and GGSNs are the border routers/nodes of the packet switching network. Gibson'943 teaches the abstract routers/nodes at the edge/border of the MPLS network. In view of this, having the system of Barany'900 and then given the teaching of Gibson'943, it would have been obvious to one having

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ordinary skill in the art at the time the invention was made to modify the system of Barany'900, by providing MPLS mechanism in the border/edges nodes of the packet switching network, as taught by Gibson'943. The motivation to combine is to obtain the advantages/benefits taught by Gibson'943 since Gibson'943 states at col. 9, line 20-25 that such modification would provide a new/updated/different set of diverse routes over the network, thereby spreading the load of the traffic over the network.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM  
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PRIMARY EXAMINER